

and oblique, canthus rostralis distinct, curved, nostril slightly nearer the tip of the snout than the eye; interorbital space about as broad as upper eyelid or a bit narrower; no tympanum, a distinct fold over the tympanic area; tips of digits very feebly swollen or not swollen at all; digits fairly short; first finger slightly shorter than second; first toe shorter than second; toes unwebbed at base; inner metatarsal tubercle rather large, outer decidedly smaller; the tibio-tarsal articulation of the adpressed hind limb reaches the axilla (a bit beyond the axilla in two paratypes); above with low, rather indistinct warts, especially posteriorly (warts more distinct in some paratypes, in others almost obsolete); smooth below.

Coloration in alcohol.—Above, dark gray, decidedly lighter on sides and on limbs, an obscure blackish crossband between the eyes, a similar band from the nostril to the eye and from the posterior corner of the eye along the "supratympanic" fold; dorsum obscurely marked with blackish; below, brownish white, suffused with light gray.

In some paratypes the obscure band anterior to the eye starts at the tip of the snout; also the "supratympanic" blackish marking may be absent. In addition, the limbs above may be obscurely crossbanded; while in some the middle of the back is not darker than the sides; markings above quite distinct in one paratype.

Measurements.—

	Length head and body	Head	Hind limb	Fourth toe
Type no. 22851	31 mm	10 mm	44 mm	9 mm
Paratypes nos. 22852-7	30-23 mm	10-8 mm	39-29 mm	8-6 mm

Remarks.—Both of these frogs have been found on dissection to have a broad cartilaginous sternum and more or less T-shaped terminal phalanges. These characters, in addition to the absence of vomerine teeth, would indicate membership in the genus *Syrrhopus*.

The terminal phalanges appear to be more T-shaped than in *Eusophus* hence these are not considered members of that genus without vomerine teeth. It appears likely that *Syrrhopus*, *Eleutherodactylus* and *Eusophus* may eventually be merged. See H. W. Parker, Ann. Mag. Nat. Hist. 10 (10): 344. 1932.

ICHTHYOLOGY.—*Status of the Asiatic fish genus Culter*.¹ HUGH M. SMITH, United States National Museum.

In 1855 Stephan Basilewsky published a paper in which were described various new genera and new species of Chinese fishes. None of the generic names except *Culter* has survived to the present time, all the others having long ago been discarded as synonyms.

The characters given in the definition of the genus were mostly applicable to several other cyprinoid genera, and scarcely a single distinctive feature was noted. One outstanding character was a dorsal fin situated over the space between the ventral and anal fins, with its second simple ray very robust and osseous. Included under the

¹ Received July 6, 1938.

genus was the well-known European fish *Cyprinus cultratus* Linnaeus, and six new species were described, of which the first three (*alburnus*, *erythropterus*, and *mongolicus*) had the abdomen compressed and carinate and the second three had the abdomen non-compressed. In two of the first three the natatory vesicle was noted as trilobed; in all of the last three it was given as bilobed.

The genus, obviously composite, has now been split up into at least four genera, *Hemiculter* (Bleeker, 1859), *Pseudoculter* (Bleeker, 1859), *Erythroculter* (Berg, 1909), and *Pseudohemiculter* (Nichols and Pope, 1927), while *Culter* proper has been retained for a few species of China, Formosa, and Siam in which the entire abdominal edge is trenchant (Berg; Nichols, 1928), or in which the abdominal edge is either trenchant throughout or trenchant only posterior to the ventral fins (Günther, 1868; Oshima, 1917).

If there were no other points involved, the status of *Culter* could be left here, but the case is not so simple.

In 1863 Bleeker designated *alburnus* as the type species of the genus *Culter*, putting it in a section of his general synopsis and key to cyprinoid fishes characterized by having the abdomen cultrate anterior to the ventral fins. In this course he was followed by Günther (1868) who, however, placed *alburnus* in the synonymy of *recurviceps* (Richardson, 1846), and in his description of the species said: "Abdominal edge trenchant from behind the ventrals, flattened between the ventrals and pectorals." Berg (1909) on the other hand recognized *alburnus* as a species in which the abdominal keel exists anterior to the ventrals and established his *Erythroculter* to accommodate Basilewsky's *erythropterus* with a trenchant abdominal edge only posterior to the ventrals. The position taken by Nichols and Pope (1927) was that "Whereas we suspect that Basilewsky's *alburnus* was actually a species with posterior keel only, quite likely identical with his *erythropterus*, one opinion is as good as another as to this and we follow Berg's ruling."

As a contribution to this phase of the present discussion, it is possible to quote from a letter dated April 29, 1937, from Mr. J. R. Norman, Assistant Keeper, Department of Zoology (Fishes), in the British Museum who had been requested to indicate just what undoubted specimens of *alburnus* and *erythropterus* in that institution actually showed as regards the abdominal edge. Mr. Norman courteously wrote:

We have several specimens identified by Günther as *Culter recurviceps* (= *alburnus*) and *C. erythropterus* respectively and I have no reason to doubt

the correctness of these identifications. Both have the abdominal edge trenchant only posterior to the ventral fins.

In setting up *Culter alburnus* as the type of *Culter*, Bleeker and various writers who agreed with him in this course entirely ignored the fact that Basilewsky himself adopted or considered *Cyprinus cultratus* Linnaeus as the type of *Culter*. No other interpretation can be placed on the circumstance that, immediately after the first use of the name *Culter*, Basilewsky devoted an entire line to the words "Cypr. cultratus Linn." The case is clearly covered by the International Rules of Zoological Nomenclature, reference being made particularly to article 30, paragraph *g*, reading:

If an author, in publishing a genus with more than one valid species, fails to designate or to indicate its type, any subsequent author may select the type.

That Basilewsky did select a type species by "indication" seems to be fully established by the international rules and the opinions thereunder, and Bleeker's action was void.

Although the point is not of vital importance, it may be noted that the original definition of the genus *Culter* fitted fairly well the species *cultratus* and that in the few particulars in which it did not apply it would have been subject to future emendation, correction, or amplification, as was done by Günther (1868) to make it fit the species he assigned to it.

In passing on the name *Culter* and its genotype, Jordan (1919) expressed the following opinion:

Culter Basilewsky; logotype *C. alburnus* Basilewsky, as restricted by Bleeker and Günther. Under the head of *Culter* Basilewsky mentions especially *Cyprinus cultratus* L. . . . although he does not exactly specify this as type. He then proceeds to describe certain Chinese species. For some of these the name *Culter* has been kept, although Basilewsky plainly intended to make his type *Cyprinus cultratus*. At present we follow the authority of Bleeker and Günther.

If it were established that *Cyprinus cultratus* was not designated or indicated by Basilewsky as the type of *Culter*, that species would automatically have become the type under another provision of the International Rules of Zoological Nomenclature. Thus, paragraph *i* of article 30, which appears as a recommendation of the International Commission on Zoological Nomenclature, reads:

If a genus, without designated type, contains among its original species one possessing as a specific or subspecific name, either as valid name or synonym, a name which is virtually the same as the generic name, or of the same origin or same meaning, preference should be shown to that species

in designating the type, unless such preference is strongly contraindicated by other factors. (Type by virtual tautonymy.)

The foregoing review has been intended to prepare the way for another aspect of this case.

The genus *Pelecus* was established by Louis Agassiz (1835) for the accommodation of *Cyprinus cultratus* Linnaeus, and the fish has ever since borne the name of *Pelecus cultratus*.

It therefore follows that Basilewsky's *Culter*, proposed twenty years later, was a synonym and that this name is not available for any of the various species which have from time to time been so designated, many of which, however, have already been placed in newly-established genera.

It now remains to provide for forms that are still carried under the name of *Culter*. These fall into two closely related genera which are named and diagnosed as follows:

Cultrops n. g. (Cyprinidae)

Body and head strongly compressed, with abdominal edge trenchant throughout; dorsal profile nearly straight and horizontal, ventral profile strongly and evenly decurved; eye in anterior half of head, postorbital region long; mouth subvertical; lower jaw with a strongly developed symphysial hook which fits into a corresponding depression in the upper jaw; no barbels; pharyngeal teeth triserial, with 4 unciniate teeth in each of the two outer rows and 2 shorter blunt teeth in the innermost row; gill openings wide; gill membranes narrowly united to isthmus; gill rakers numerous, long, setiform; natatory vesicle tripartite; scales small; lateral line slightly decurved, often consisting of 2 or 3 disconnected overlapping sections, and running in lower half of caudal peduncle; dorsal fin placed over the space between ventral and anal fins, with 7 branched rays and with last simple ray slender, weak, and non-osseous; caudal fin forked; anal fin with 23 to 25 branched rays; pectoral fins long.

Genotype.—*Culter siamensis* Hora, inhabiting Siam.

The genus *Paralaubuca* established by Bleeker in 1863 (Atlas Ichthyologique, III) for a common Siamese species (*typus*) is close to *Cultrops* (rather than to *Laubuca* with which Bleeker compared it) but seems to be sufficiently differentiated.

Cultrichthys n. g. (Cyprinidae)

Body and head strongly compressed, with abdominal edge trenchant from pectoral base to vent; dorsal and ventral outlines similar; eye in anterior half of head, postorbital region long; mouth subvertical; no postsymphysial knob or hook on lower jaw; no barbels; pharyngeal teeth slender, triserial, 5,4,2—2,3(or 4),4, or 4,3,1—1,3,4; gill openings wide; gill membranes narrowly united to isthmus; gill rakers numerous, long, setiform; natatory vesicle tripartite; scales small; lateral line with slight downward curvature; dorsal fin placed over the space between ventrals and anal or slightly over-

lapping origin of anal, with 7 branched rays and with the last simple ray smooth, stout, and osseous; caudal fin forked; anal fin with 28 to 30 branched rays; pectoral fins long.

Genotype.—*Cultur breviceuda* Günther, inhabiting Formosa and China.

LITERATURE CITED

- AGASSIZ, LOUIS. *Ueber die Familie der Karpfen*. Memoirs, Société Neuchateloise des Sciences Naturelles 1: 39. 1835.
- BASILEWSKY, STEPHAN. *Ichthyographia Chinae Borealis*. Nouveaux Memoirs de la Société Impériale des Naturalistes de Moscou 10: 215–263, tab. I–IX. 1855.
- BERG, L. S. *Ichthyologia Amurensis*. Memoirs de la Academie des Sciences de St. Petersbourg 24: 1–270. 1909.
- BLEEKER, P. *Conspectus Systematis Cyprinorum*. Natuurkundig Tijdschrift voor Nederlandsch-Indie 20: 421–441. 1859.
- *Atlas Ichthyologique des Indes Orientales Néerlandaises* 3: 33. 1863.
- GÜNTHER, ALBERT. *Catalogue of the Fishes in the British Museum* 7: 328. 1868.
- HORA, SUNDER LAL. *On a Collection of Fish from Siam*. Journal of the Natural History Society of Siam 6: 143–184. 1923.
- JORDAN, DAVID STARR. *Genera of Fishes*, II: 263. 1919.
- NICHOLS, JOHN T. *Chinese Fresh-water Fishes in the American Museum of Natural History's Collections*. Bulletin of the American Museum of Natural History 58: 1–62. 1928.
- NICHOLS, JOHN T. and CLIFFORD H. POPE. *The Fishes of Hainan*. Bulletin of the American Museum of Natural History 54: 321–394. 1927.
- OSHIMA, M. *Contribution to the Study of the Fresh-water Fishes of the Island of Formosa*. Annals of the Carnegie Museum 12: 169–328. 1917.
- RICHARDSON, JOHN. *Report on the Ichthyology of the Seas of China and Japan*. Report of the fifteenth meeting of the British Association for the Advancement of Science 1845: 187–320. 1846.

PROCEEDINGS OF THE ACADEMY AND AFFILIATED SOCIETIES PHILOSOPHICAL SOCIETY

1135TH MEETING continued

J. W. MCBURNEY: *Freezing and thawing of brick*.—Freezing and thawing tests are rarely used as acceptance tests for building brick because of the length of time required to obtain results. The principal use of such tests in recent years has been in the evaluation of weathering classification of building brick. The classifications are based upon certain physical properties that can be readily measured in the laboratory. The most important of these properties is the C/B ratio which can be defined as the ratio of easily filled pore space to total fillable pore space. Twelve samples of 20 bricks each were selected from each of 5 large samples representing 5 different types of bricks so that the distribution of the physical properties of each small sample closely resembled each other small sample. These comparable small samples were frozen and thawed up to 75 cycles using 7 different techniques of freezing and thawing. Three types of exposure to weather were used on others of these small samples. The action of both laboratory freezing methods and natural exposures can be summed up by stating that the greater the degree of saturation at the time of freezing, the more effective was the method in producing disintegration. (*Author's Abstract*.)

The first paper was discussed by Messrs. KRACEK, HERSCHEL, McNISH, and HECK; the second one by Messrs. TUCKERMAN, HECK, KRACEK, and STEVENSON.

An informal communication on the bisection of a horn angle was pre-